UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,697	05/19/2005	Detlef Mueller	DE02 0278 US	9252

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EXAMINER
PARTRIDGE, WILLIAM B

ART UNIT	PAPER NUMBER
2112	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/535,697	MUELLER, DETLEF
	Examiner	Art Unit	
	William B. Partridge	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *13 November 2003*.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-10* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-10* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *13 November 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *5/19/2005*.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Claims 1-10 are pending and have been examined.

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on May 19th, 2005 is in
compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure
statement is being considered by the examiner.

Specification

Content of Specification

(a)   <u>Title of the Invention</u>: See 37 CFR 1.72(a) and MPEP § 606. The title of
the invention should be placed at the top of the first page of the
specification unless the title is provided in an application data sheet. The
title of the invention should be brief but technically accurate and
descriptive, preferably from two to seven words may not contain more
than 500 characters.

(b)   <u>Cross-References to Related Applications</u>: See 37 CFR 1.78 and MPEP
§ 201.11.

(c)   <u>Statement Regarding Federally Sponsored Research and Development</u>:
See MPEP § 310.

(d)   <u>The Names Of The Parties To A Joint Research Agreement</u>: See 37 CFR
1.71(g).

(e)   <u>Incorporation-By-Reference Of Material Submitted On a Compact Disc</u>:
The specification is required to include an incorporation-by-reference of
electronic documents that are to become part of the permanent United
States Patent and Trademark Office records in the file of a patent
application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer
program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),
and tables having more than 50 pages of text were permitted as electronic
documents on compact discs beginning on September 8, 2000.

(f)   Background of the Invention: See MPEP § 608.01(c). The specification
        should set forth the Background of the Invention in two parts:

        (1)   Field of the Invention: A statement of the field of art to which the
                invention pertains. This statement may include a paraphrasing of
                the applicable U.S. patent classification definitions of the subject
                matter of the claimed invention. This item may also be titled
                "Technical Field."

        (2)   Description of the Related Art including information disclosed under
                37 CFR 1.97 and 37 CFR 1.98: A description of the related art
                known to the applicant and including, if applicable, references to
                specific related art and problems involved in the prior art which are
                solved by the applicant's invention. This item may also be titled
                "Background Art."

(g)   Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary
        or general statement of the invention as set forth in 37 CFR 1.73. The
        summary is separate and distinct from the abstract and is directed toward
        the invention rather than the disclosure as a whole. The summary may
        point out the advantages of the invention or how it solves problems
        previously existent in the prior art (and preferably indicated in the
        Background of the Invention). In chemical cases it should point out in
        general terms the utility of the invention. If possible, the nature and gist of
        the invention or the inventive concept should be set forth. Objects of the
        invention should be treated briefly and only to the extent that they
        contribute to an understanding of the invention.

(h)   Brief Description of the Several Views of the Drawing(s): See MPEP §
        608.01(f). A reference to and brief description of the drawing(s) as set
        forth in 37 CFR 1.74.

(i)   Detailed Description of the Invention: See MPEP § 608.01(g). A
        description of the preferred embodiment(s) of the invention as required in
        37 CFR 1.71. The description should be as short and specific as is
        necessary to describe the invention adequately and accurately. Where
        elements or groups of elements, compounds, and processes, which are
        conventional and generally widely known in the field of the invention
        described and their exact nature or type is not necessary for an
        understanding and use of the invention by a person skilled in the art, they
        should not be described in detail. However, where particularly
        complicated subject matter is involved or where the elements,
        compounds, or processes may not be commonly or widely known in the

field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

(j)   Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

(k)   Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

(l)   Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

2.   The disclosure is objected to because of the following informalities: The specification lacks any indication as to the different sections of specification. For example, the specification lacks any indication as to where the background ends and the summary begins.

Appropriate correction is required.

Claim Objections

3.   Claims 1-2, 5-6 and 8 are objected to because of the following informalities:

Claims 1-2, 5-6 and 8, the term "and/or" should be changed to "or" as it is not

possible to load an address and a value into the program counter at the same time.

Claims 1-2 and 5-6 contain grammatical errors rendering the claims difficult to

understand. Examples of such problems are "the input of the program counter in case

of a fulfilled branch condition being loadable" and "in case of a fulfilled branch condition

the new address and/or the new value, and in case...". Examiner respectfully requests

that Applicant revise these claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Regarding claims 1, 5 and 10, the phrase "for example" renders the claim

indefinite because it is unclear whether the limitation(s) following the phrase are part of

the claimed invention. See MPEP § 2173.05(d).

Claims 1 and 5 disclose the limitation "the program counter, instead of ending the

instruction, is optionally re-loadable with its previous address". The instruction itself

would still be ended as the instruction run is now complete regardless of what the result

of the instruction is or what occurs in response to said result. It is unclear as to what the

program counter's next value has to do with an instruction ending or how the program

counter is to prohibit the instruction from ending. It is also unclear as to whether or not

the instruction not ending is optional or if in the event the instruction is not ended that

the re-loading is optional.

Claims 2-4 and 6-10 are indefinite in that they depend on claims 1 and 5 which

are themselves indefinite.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1, 2-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated

by Cohen (EP 0 690 370 A2).

Claim 1 (As best understood)

Cohen teaches:

A microcontroller, the programming of which is carried out in at least one

machine-dependent assembly language in which the assembler commands, with

the exception of conditional program branches, are executable essentially

independently of data (Page 8 line 41 – Page 9 line 29), Microcontrollers inherently

carry instructions out in machine dependent languages as the hardware is usually

unique based on the task desired. The conditional branch instruction by its conditional

state, that is the instruction executes in specific ways based on value conditions, would

be dependent on data.

in case of a fulfilled branch condition, for example, at least one fulfilled

status flag, at least one program counter being loadable with a new address

and/or a new value (Page 8 line 41 – Page 9 line 29), Any instruction's execution,

including that of a conditional branch, would result in a new address being loaded into

the program counter if even to simply increment the program counter upon the

completion of the current instruction.

in case of an unfulfilled branch condition, for example, at least one

unfulfilled status flag, the instruction being ended, characterized in that in case of

an unfulfilled branch condition the program counter, instead of ending the

instruction, is optionally re-loadable with its previous address and/or with its

previous value (Page 8 line 41 – Page 9 line 29). In the event the condition is not

fulfilled the jump instruction will jump to a specified location. The address specified

could be the previous program counter address if desired.

Claim 3

The rejection of claim 1 is incorporated and further Cohen teaches:

A microcontroller characterized by its configuration as a smartcard

controller (Page 8 line 41 – Page 9 line 29). A microcontroller is inherently a smartcard

controller. By definition a smartcard is any circuit with built-in logic or firmware that

gives it some kind of independent decision-making ability.

Claim 4

The rejection of claim 1 is incorporated and further Cohen teaches:

An electrical or electronic device controlled by means of at least one

microcontroller (Page 8 line 41 – Page 9 line 29). Microcontrollers are designed to

control devices and as such the microcontroller would inherently be capable of

controlling an electrical or electronic device.

Claim 5 (As best understood)

Claim 5 is the method claim corresponding to the product claim 1 and is rejected under

the same reason set forth in connection with the rejection of claim 1.

Claim 6 (As best understood)

The rejection of claim 5 is incorporated and further Cohen teaches:

characterized in that

in case of a fulfilled branch condition the new address and/or the new value

(Page 8 line 41 – Page 9 line 29), Any instruction's execution, including that of a

conditional branch, would result in a new address being loaded into the program

counter if even to simply increment the program counter upon the completion of the

current instruction.

in case of an unfulfilled branch condition the address at the output of the program counter and/or the value at the output of the program counter is/are supplied to the input of the program counter (Page 8 line 41 – Page 9 line 29). In the event the condition is not fulfilled the jump instruction will jump to a specified location. The address specified could be the current program counter address if desired.

Claim 8

The rejection of claim 5 is incorporated and further Cohen teaches:

in case of an unfulfilled branch condition the option between ending the instruction and re- loading the program counter with its previous address and/or with its previous value is controlled by at least one special bit (so-called "select bit") (Page 8 line 41 – Page 9 line 29). The special bit is inherently present in the robust jump instruction in that the opcode for the robust jump instruction must be different from the regular jump instruction, the difference in the opcodes would include at least on bit that was different in order to indicate this difference.

Claim 9

The rejection of claim 5 is incorporated and further Cohen teaches:

in case of an unfulfilled branch condition, in program parts which are non-critical and/or not security-sensitive the option of ending the instruction is selected in particular by the special bit (Page 8 line 41 – Page 9 line 29). The

special bit is inherently present in the robust jump instruction in that the opcode for the

robust jump instruction must be different from the regular jump instruction, the

difference in the opcodes would include at least on bit that was different in order to

indicate this difference.

Claim 10

The rejection of claim 8 is incorporated and further Cohen teaches:

the special bit option can be switched on and off in any desired sequence,

for example, by means of at least one random function and/or by means of at

least one suitable bit sequence (Page 8 line 41 – Page 9 line 29). The decision to

use the robust or non-robust jump would be decided by program execution, a suitable

bit sequence.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen

(EP 0 690 370 A2) in view of Delvaux et al. (US 6,851,046 B1).

Claim 2 (As best understood)

The rejection of claim 1 is incorporated and further Cohen teaches:

the input of the program counter

in case of a fulfilled branch condition being loadable with the new address

and/or the new value (Page 8 line 41 – Page 9 line 29), Any instruction's execution,

including that of a conditional branch, would result in a new address being loaded into

the program counter if even to simply increment the program counter upon the

completion of the current instruction.

in case of an unfulfilled branch condition being loadable with the address

at the output of the program counter and/or with the value at the output of the

program counter (Page 8 line 41 – Page 9 line 29). In the event the condition is not

fulfilled the jump instruction will jump to a specified location. The address specified

could be the current program counter address if desired.

Cohen does not specifically teach:

at least one multiplex unit triggerable by means of the result of the testing

of the branch condition

However, Delvaux, in an analogous art, does teach the above limitation (Fig 1D,

Column 5 line 27 – Column 6 line 24).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the teaching of Delvaux into the teaching of

Cohen to have a multiplexer select the program counter's input value. The modification

would have been obvious because one of ordinary skill in the art would have been

motivated to allow the target address of multiple branch locations to be available at the

input of the program counter so that no delay is incurred in fetching a specific address.

10.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen

(EP 0 690 370 A2) in view of Gammel (DE 10044837 C1).

Claim 7

The rejection of claim 5 is incorporated but Cohen does not specifically teach:

the testing of the branch condition and/or the loading of the program

counter is/are carried out with complementary data.

However, Gammel, in an analogous art, does teach the above limitation (Claim 8

– *"Procedure after claim 7, marked in that the signals level of the first direction of a*

direction couple is logical 0 or 1, while the signals level of the second direction is logical

1 or 0."). The complementary data is on the second signal line and both lines are used

along the data transfer path.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the teaching of Gammel into the teaching of

Cohen to also have complementary data present. The modification would have been

obvious because one of ordinary skill in the art would have been motivated to have the

complementary data available in the event that the value along that data path is

attempted to be detected, by having both possible values present it would be impossible

to detect if the branch had actually occurred or not.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barnett et al. (US 4562537 A) teaches a high speed processor.

Jin (US 5960210 A) teaches a nested-loop-specialized circuitry for repeatedly performed arithmetic operations in digital signal processor and method thereof.

Kaplan et al. (US 5031134 A) teaches a system for evaluation multiple integrals.

12.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to William B. Partridge whose telephone number is (571) 270-1402. The examiner can normally be reached on M-TR 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das can be reached on (571) 272-3696. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: William B Partridge
Date: December 7th, 2006

CHAMELI DAS
SUPERVISORY PATENT EXAMINER

12/7/06